



Industrial Digital Print Markets: North America

An Analysis of User Adoption Practices and Opportunity

Part 2:

Wide-Format Display Graphics

Production Textile Market





Industrial Digital Print Markets: North America

An Analysis of User Adoption Practices and Opportunity (Part 2)

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INTRODUCTION

SGIA asked IT Strategies to undertake a mix of primary and secondary research into some established and significant digital industrial print markets to understand what makes people enter the markets, the experience of entering the new markets and the opportunity these markets represent for the future.

At IT Strategies, we have specialized in exclusively tracking the growth and development of industrial and production digital print markets since 1992. For this study we have focused resources on five sectors of industrial markets: decorative, pressure-sensitive labels, direct-to-shape product markings, production textiles print, and wide-format display graphics. These represent the most important digital print markets outside of communications print, packaging and some other more marginal industrial specialties.

Digital technology suitable for strategic insertion into the five markets under analysis is at this time relatively undeveloped at the high end of the decorative and DTS markets, whereas true production technology is available for labels, textiles and display graphics markets. In our research, we evaluate the current status of digital production print, barriers to the North American market and new opportunities for digital.

The focus is on the relationship between the digital and analog production, economics and functionality of digital technology as its initial value proposition, the uniqueness of digital and new developments it brings to the market in terms of new applications, new users and opportunities for brand owners.

The report is organized in two parts. Part One focuses on the decorative print, labels and direct-to-shape markets. Part Two is about wide-format display graphics and textiles markets.



Mark Hanley
President, IT Strategies



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Basis of Analysis

We offer a significant amount of statistics and interpretational analysis in this report. It should be understood that with subject matter of this diversity, dynamism and complexity, statistics represent our best estimates. The data behind the statistics and analysis is gathered with care and our sources are excellent, so it is reliable, but there is a margin of error of perhaps 15% at worst (though in most cases it is probably much better than this). Similarly, there is debate around the conclusions to be drawn from the observed development of the market. We have taken what we think is in most cases a conservative view after reviewing diverse opinion, but in the end these are our opinions and are subject to fair debate, and could be subject to revision, alternative interpretation and to challenge in general.

Qualifying Note around User Research

We want to emphasize that a careful reading of our analysis throughout this report will indicate that the scale and positioning of digital print by sector was highly varied with many cases of digital becoming strategic but being small-scale and within a specialized offering. At least for now, even as users may foresee a much larger future and broader offering of digital products. That is, underlying assumptions of the framework questionnaire presuming digital will become an integrated production component within an analog infrastructure of offerings do not correspond in all cases fully to reality. We believe that digital, even as it develops to higher volumes of print and lower costs, may in fact underpin a new model of print which remains for at least the mid-term rather specialized, narrowly focused, and targeted at high value, but taking significantly larger shares of revenue than output, and even more so of profit.

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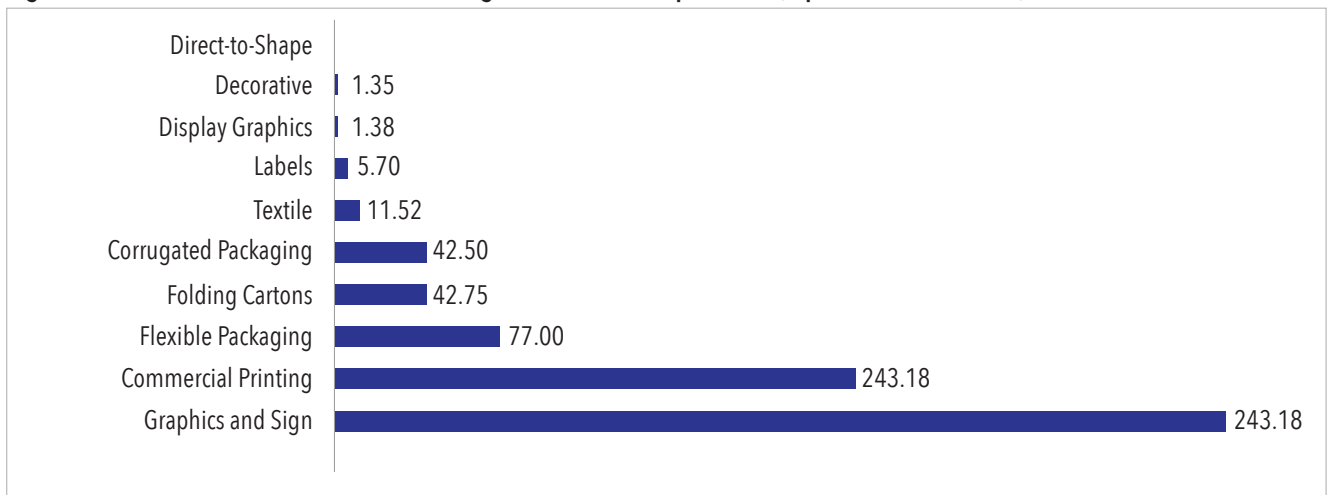
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Print Industry Overview

In order to set the industrial print markets in their correct context, Figure 1 quantifies the relative size of the five industrial markets analyzed in this report – decorative print, labels, direct-to-shape (DTS), wide-format display graphics and textiles – in annual square meters of analog or traditional print output in North America – as compared to other large print markets in packaging, commercial printing, and graphics and sign. Physical output as used here is a measure, a unified form of comparison valid for most markets and provides an objective method of comparison. DTS is measured by units of print, not square meters, so DTS data is separately provided in the report section devoted to DTS.

The five industrial sectors that are the focus of our research, taken together with the packaging, commercial, and graphics and sign markets, represent close to 90% of all print markets. The only industrial market of scale we have omitted is ceramic tiles, which did not qualify in light of its heavy focus on China and the fact that it already represents mostly-conquered territory for digital print. It will be seen that the five industrial sectors are orders of magnitude smaller than their packaging, publishing and communications rivals. That is not to say they are in some way objectively small or not excellent production opportunities for digital print. Rather, they operate on a different scale within their own unique current performance and economic envelopes.

Figure 1: Relative Size of North American Analog Print Markets Output, 2017 (Square Meters, billions)



Source: IT Strategies

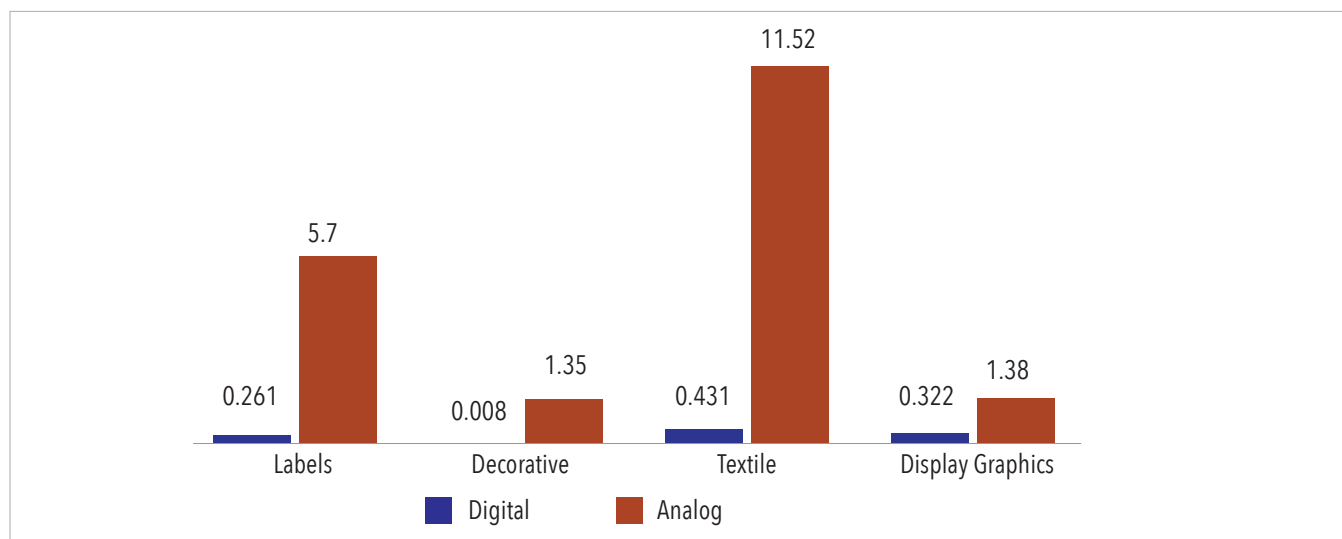
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Industrial Print Markets

The statistics in Figure 2 quantify digital and analog output in annual square meters in the North American market for the following sectors: labels, decorative, textiles and display graphics. If we were to compare digital markets to analog in terms of their relative share of revenue the shares would be larger (three to four times larger in some cases). The share might be even greater if we could compare profitability. Those higher share numbers, when measured financially, are a reminder that when we speak of production markets according to the different business models adopted by different sectors and within sectors, we should be aware of the variety of ways people do in fact measure success or market penetration.

Figure 2: Relative Size of Digital and Analog Industrial Markets Output (Square Meters, billions)



Source: IT Strategies

In digital industrial markets, the model today is most frequently a higher-value/lower-volume model by comparison to traditional analog print markets. That could change over time as markets grow and become more competitive. Even so, that may not mean markets will ever become as commoditized as some analog print markets, with their old model of large masses of identical product. We can say now that among the industrial markets addressed in this report the digital output shares are mostly small and at an early stage of development. Only display graphics, with about 25% relative share of print output against analog, stands out (Table 1).

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Table 1: Digital Final Printed Product as Percentage of Analog, Output and Revenue

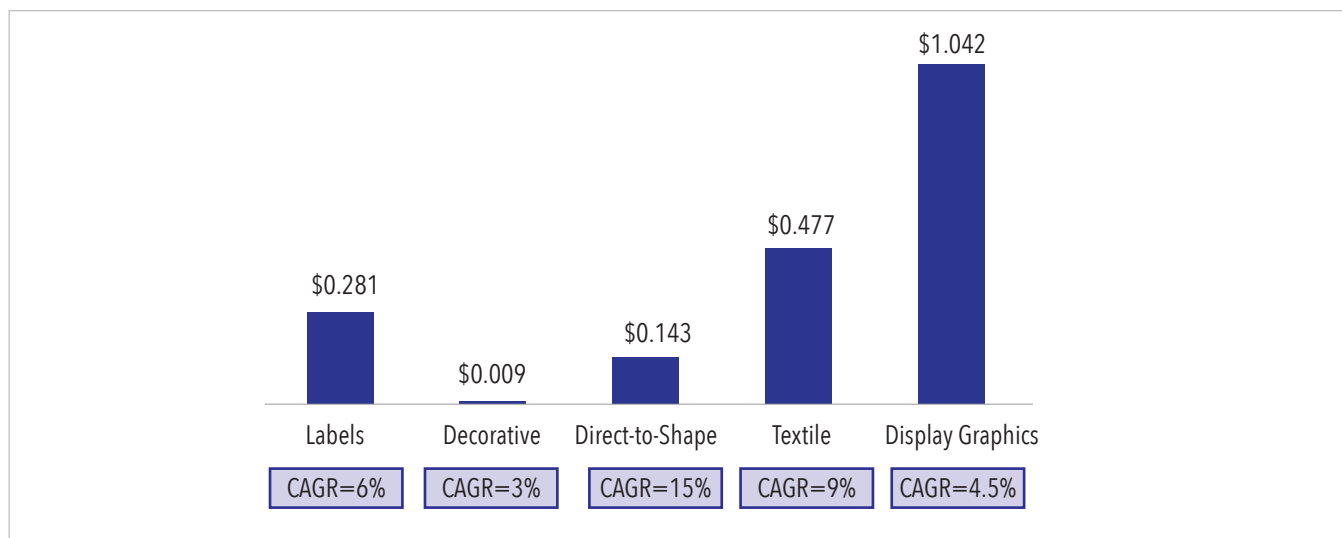
| | Digital Final Printed Product as Percentage of Analog | |
|-------------------------|---|--------------|
| | Output (BM ²) | Revenue (\$) |
| Display Graphics | 23.33% | 265.15% |
| Labels | 4.58% | 15.00% |
| Textile | 3.74% | 6.08% |
| Decorative | 0.59% | 1.52% |
| Direct-to-Shape | N/A | 0.50% |

Source: IT Strategies

Furthermore, relative share does not necessarily imply direct competition between digital and analog print. In most cases, digital is in fact doing something new and unique, and has to be called a parallel, rather than directly competitive, market. Often digital starts out with a directly competitive rationale in being able to handle short runs with better economics than analog print, but that is not always true, and even where it is digital markets often soon diverge to value propositions around true uniqueness and new markets.

How much do industrial printers spend on digital? As seen in Figure 3, North American digital vendor revenues (hardware and ink) vary by sector, with a total of just over \$2B in 2017.

Figure 3: Digital Industrial North American Markets Vendor Revenues (\$, billions)



Source: IT Strategies



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Primary Research Approach

As a major source for the analysis, we interviewed seven users, two digital vendors at least one brand owner per sector. We used a questionnaire for the primary research directly for users. The questionnaire serves as a guide for vendors and brand owners who were asked about their experiences adopting digital systems and developing digital markets under the following major headings: years of digital market presence in North America, directness of competition of digital to analog, presence in existing analog channel, maximum productive scale vs. analog average, digital market size in North America vs. EU. The summary of individual answers given by users contained in the body of the report follows the schematic of the questionnaire in an abridged format.

The primary research was undertaken on a double-blind basis to ensure openness and remove bias. That means the interviewee did not know who behind IT Strategies was asking, and SGIA and the report reader do not know who is responding outside of generic identifiers provided. The identity of research targets has been concealed and is not intended to be known.

For each industrial market, we provide a graphic status summary. Below is an explanation of the five headings under which we will summarize the status of each market's digital/analog print positioning:

- **Years of Digital Market Presence in North America**

This is our estimate of how long digital print technology has been commercially present in North America with a strategic, credible, productive offering to this market.

- **Directness of Competition of Digital to Analog**

Directness of Competition means to what extent digital technology is making a direct argument to substitute analog print technology at some level of product equivalence as opposed to providing an offering going substantially beyond equivalence to analog.

- **Presence in Existing Analog Channel**

This measures the extent to which digital print technology has been adopted by existing analog print/conversion channels as opposed to parallel channels not previously engaged directly in analog print in this sector.

- **Maximum Productive Scale vs. Analog Average**

This is an approximate comparison of our view of average productivity rates in terms of print output between representative analog and digital print technology in this sector.

- **Digital Market Size: North America vs. EU**

This compares the proportion of the existing digital market in North America as opposed to the other early-developing industrial digital print region of EU. We have not included Asia Pacific for reasons of simplicity and because Asian market conditions can be substantially differentiated by comparison to US and EU.

Under each graphic we provide a concise description of the market's status as we understand it from our own industry knowledge and from the primary research conducted for this report.

The sectors researched are so extremely diverse and operate under such different conditions that it was difficult to use a single filter for qualifying interview targets. We tried however in each case to find users with maximized time in market a maximized application of digital relative to the digital positioning of that sector.

Because the sectors analyzed were either new to digital (decoratives, direct-to-shape), had a model of fragmentation (display graphics), had only a limited presence in North America (textiles) or were only just beginning to achieve a higher production positioning (labels), this meant that the questionnaire that in some parts assumed a level of integration and relationship to production analog printing varied in focus. To deal with this problem we decided to focus on the underlying issues of acquisition, calculating ROI, early market development, later market development and vendor relationships underpinning the questionnaire. This was a successful approach.

The report is presented in two parts:

- Part 1: Decorative, Production Labels, Direct-to-Shape markets
- Part 2: Production Textile and Wide-Format Display Graphics markets

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PART 2:

WIDE-FORMAT DISPLAY GRAPHICS

Market Definition

The wide-format graphics or display graphics (DG) market can be defined as a print market with images exceeding 24 inches in width intended to be viewed at distances of 6 feet and more. The market derives from the signage market of the 1950s when people painted signs, sawed wood and bent metal and signage for public regulated advertising (i.e., billboards). The painting part of that has almost gone away and the cutting and bending is a specialist trade now. What we have today is a color graphics market driven primarily by the retail consumer economy, but also by a large new trade in event-related graphics. That market, which has grown through screen printing to offset print to digital inkjet print, is found in thousands of new kinds of locations compared to the past.

Market Development

Today there are two well-defined and largely separate display graphics print markets. The first being a high-volume, very low-cost analog market dominated by highly efficient large-scale offset technology and some screen printing. The second is a purely digital market dominated by mostly serial printing low-cost inkjet color systems in widths up to 2 meters as well as production systems of up to 5 meters width capable of throughputs of up to 10,000 square feet per hour at the high end. The digital market, which has existed for 25 years, deploys flatbed and roll-to-roll formats.

While the analog market has developed over a longer period, each market has largely developed, separately serving different needs and within radically different economic models.

The analog print sector in the display graphics market provides extremely low-cost, highest-offset-quality graphics with near-perfect continuity of quality to large retailers who deploy them in their retail locations as brand identity type graphics. These reflect cycles of brand identity which change infrequently and usually deploy graphics fundamentally the same globally for the brand. There is a relative handful of major providers in each developed economy national market that vies for this business on an annual contractual basis. While the print costs are driven to very low levels, the print providers mostly make their money from fulfillment, which in this case is the process of providing the graphics and images in the myriads of formats and sizes required by each different physical retail location. They have to manage that complexity and also supply the graphics for installation at each retail site in a creatively designed way that lends itself to accurate deployment by local retail staff. The physical print output of this sector significantly exceeds the physical output of all the digital display graphics output, though the value of digital significantly exceeds the value of the analog print output.

The digital print sector of display graphics is the successor to its immediate antecedent, the digital letter cutter market. 25 years ago, certain vendors had developed inkjet-based line plotters to replace foregoing ink-pen systems driven on an XY coordinate line placement system. When certain software vendors saw inkjet-driven plotters, they developed RIPs to turn the color line plotters into color raster (dot-based) image writers. Through the efforts of companies like ENCAD and Lasermaster, the wide-format graphics inkjet market was born.

The early market appeal of inkjet wide-format graphics is easily explained as making color graphics in support of retail sales available at point-of-purchase (POP). The market was/is the local retailer who had never been a print buyer and uses his local budget to buy very small quantities of graphics at the high prices inkjet charged, but which represented to him a very strong return on investment (ROI) where he can affect sales on consumer goods by a couple of percentage points. It is not an exaggeration to say that this market became a strategic daily tool of retail. Now the market includes all the event-related markets and various other specialties, but its value in revenues from end users globally is around \$40 billion since commencement 25 years ago, \$9 billion of which is in the US alone. A high-volume market in aggregate, the digital display graphics market is, to a significant extent, a fragmented local market in its structure. The digital display graphics market has developed alongside the analog display graphics market, and neither has had much effect on the other, though now some high-volume digital systems are getting into the offset environments in significant numbers.

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Wide-Format Display Graphics • Production Textile Market

The analog market has evolved from screen to a mix with offset print in the dominant position generating very large volumes of low-cost, super-high-quality-and-continuity brand graphics for major retailers. The digital market went with the opposite model of high-cost, very low volume graphics sold in small quantities to retailers in support of POP sales. This was a previously largely unaddressed market and has now become a strategic support for retail sales of goods to consumers. In recent years the UV inkjet market has developed a digital high-volume sector addressing the POP needs of larger retailers. Display graphics has also come much more to support the events, entertainment and sports industries.

The digital display graphics market is still largely independent of the analog market in terms of economics, channels and products (Table 2). There is some interest by display graphics offset converters in very high-end UV flatbed systems, but it is not at this point strategic. Offset display graphics retains a unique positioning within the brand owner and print buyer community in terms of perceived print quality and super low cost of supply rooted in a market whose brand identity needs continues to drive large volumes of identical print, albeit in a multitude of physical formats, based on a still-valid model of uniform global brand identity.

The digital display graphics market is slowly maturing, and though printed output continues to grow strongly, vendors have diversified with more industrial markets like ceramics, decorative or DTS. For display graphics converters, the market has reached a competitive point where it is hard to make a profit from print alone, forcing the survivors to diversify into market-related enhanced services and super-conversion.

Table 2: North American Digital Display Graphics Market Positioning

Years of digital market presence in North America: 20+

| | |
|--|-----------------------------------|
| <i>Directness of competition of digital to analog (equal validity, but untested)</i> | |
| Better digital economics at low scale = directly competitive to analog | Uniqueness of digital offering |
| <i>Presence in Existing Analog Channel</i> | |
| Digital Integrated to Analog Channel | Separate Parallel Digital Channel |
| <i>Maximum Productive Scale vs. Analog Average</i> | |
| 100 - 1000 M ² /H Wide-Format Systems Digital | 25,000+ M ² /H Analog |
| <i>Digital Market Size: North America vs. EU</i> | |
| North America | EU |

North American Display Graphics Market Conditions

The North American digital display graphics market is highly competitive and is mature from a vendor perspective. Nevertheless, printed output continues to rise, suggesting that demand is not mature yet. Because of the wide distribution of display graphics digital technology on a local level, the competitive environment between print providers is becoming uncomfortable certainly for simple print product. This causes the onus of providers to enter new markets or diversify their offerings, both of which are occurring.

There is also a strengthening trend at the high end of the market to acquire super-fast systems with capability to print from 3,000 to 10,000 square feet per hour. This is partly in response to larger print service providers' (PSP) needs to handle very high order levels seasonally, and partly an initiative to bring the large-scale offset display graphics printers into the digital market by providing them with higher flexibility and the ability to diversify in a super-competitive market.

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Wide-Format Display Graphics • Production Textile Market

Current Status

The North American display graphics market outputs in analog and digital print around 1.4 billion square meters each year, which is around 23% of the global market, and is growing (Table 3). The print technology split is 23% digital, 19% screen print and 58% offset (Figure 4). This yields a value in print provider revenue for printed materials sold to users plus services of around \$9.4 billion.

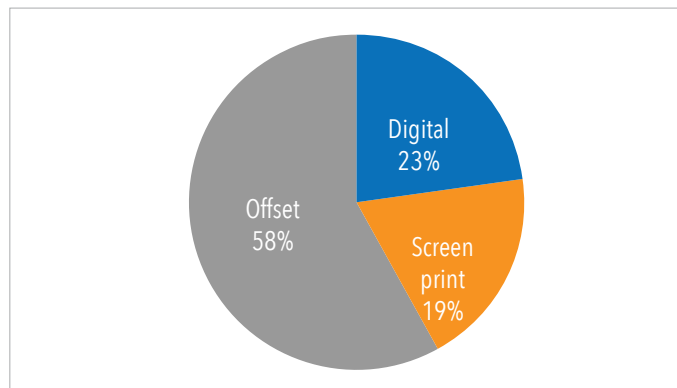
The display graphics segment has the highest share of digital output compared to other industrial print markets and is a good example of the low-volume, high-value model (Figure 5).

Table 3: Display Graphics – Analog vs. Digital, Output and Revenues, Forecast (North America)

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | CAGR |
|---|------|------|------|------|------|------|------|--------|
| Analog Printed Product Output, BM ² | 1.38 | 1.40 | 1.42 | 1.44 | 1.46 | 1.49 | 1.51 | 1.50% |
| Digital Printed Product Output, BM ² | 0.32 | 0.34 | 0.35 | 0.37 | 0.38 | 0.40 | 0.42 | 4.50% |
| Analog Printed Product Revenues, \$B | 3.04 | 3.01 | 2.98 | 2.95 | 2.92 | 2.89 | 2.86 | -1.01% |
| Digital Printed Product Revenues, \$B | 8.05 | 8.33 | 8.62 | 8.93 | 9.24 | 9.56 | 9.90 | 3.50% |

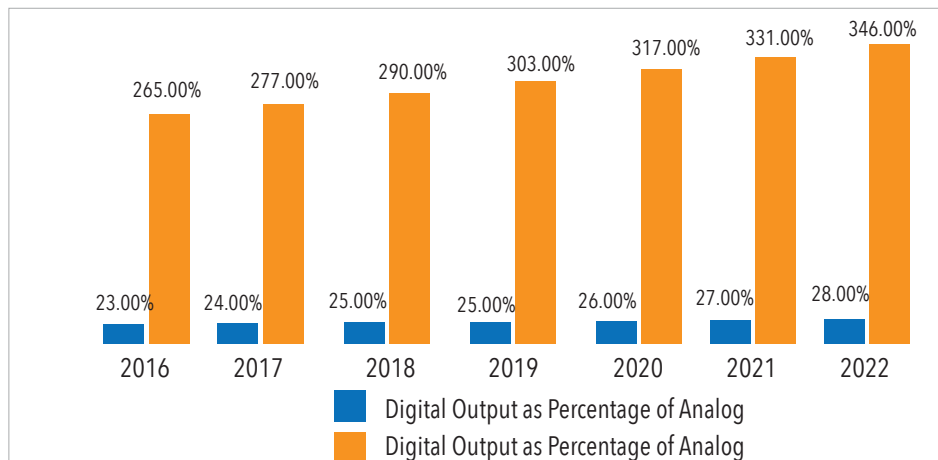
Source: IT Strategies

Figure 4: Display Graphics Market Output Distribution (North America)



Source: IT Strategies

Figure 5: Display Graphics – Digital Output and Revenues as Percentage of Analog, Forecast (North America)



Source: IT Strategies

Industrial Digital Print Markets: North America

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Digital Value Proposition

Originally the single biggest driver of display graphics was local retailers' ability to buy their own micro-quantities of graphics independent of headquarters for which they would pay princely sums as there has always been a clear understanding of the effect on the bottom line of color POP graphics. In other words, there is always an excellent ROI on otherwise expensive graphics (albeit in micro quantities). That value proposition is still valid, only now in very large volumes in aggregate. Meanwhile, a market has developed around event-related graphics and local high-volume users on a seasonal basis. From a PSP's value proposition perspective, display graphics has also generated a platform for services and enhanced product conversion.

Digital Technology Formats, Scale and 5-Year Targets

Digital technology for display graphics is available in an excellent diversity of size, price and flatbed/roll-to-roll formats. What began as a small-scale local channel has now come to include volume specialists at the top of the market with a leaning to UV inkjet systems appropriate to fast-response specialists. It is also possible to find systems with aqueous inks for the highest-quality, solvent systems for film print excellence, latex ink for environmentally-sensitive users and UV for throughput-driven users. There are even single-pass systems beginning to appear for super high-volume while numerous original display systems continue to be engineered into industrial markets.

Positioning of Analog and Digital Print Today in Display Graphics Markets

At present branding identity tends to be driven by a global ethic. That would have to change more. There is as good as no real analog/digital overlap, though some offset providers are beginning to look at the highest throughput UV systems partly because their analog market is not margin-rich and because they suspect in some cases, but without much proof yet, that even the offset market may at some point start becoming local.

This mutual sector non-dependence is explained essentially by the diametrically opposed structures and economics of each sector where digital is fragmented, local and high-cost while analog is centralized and volume-driven to high-scale economics within a very competitive print provider environment among very large companies earning relatively low margins.

Display Graphics Channels

About two-thirds of the digital display graphics market in terms of output is served by aqueous, eco-solvent and latex inkjet technology in a serial-printing roll-to-roll, low-hardware-cost format with systems costing well under \$100,000 though utilizing a high running-cost model. There are perhaps 20,000+ outlets for this technology in North America. The other third of the market is served mostly by flatbed and roll-to-roll UV-curable inkjet systems through a network of PSPs who specialize in larger accounts and are numbered perhaps around 1,000–2,000. Among this smaller channel are companies who handle very large demand swings seasonally, driven by the consumer retail economy. Since volumes can increase 20-fold over two weeks, this channel has need of fast systems, which is the role that UV inkjet printing has more or less taken on in the market.

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Wide-Format Display Graphics • Production Textile Market

Primary Research Analysis: Interview Targets within Display Graphics Environments

The wide-format or display graphics digital market is numerically substantially made up of smaller roll-to-roll low-end local providers. For the purposes of the present production-oriented research, we have focused on the high end of the market among the larger providers invested in volume production around mostly UV systems, and even in the offset analog display graphics market (Table 4). This is a dynamic sector benefiting in recent years from larger-scale technology availability in UV systems.

Table 4: Summary of Display Graphics Market Interviewees

| | | |
|---|----------------------|--|
| #1 North American high-end display graphics provider | | |
| Estimated revenues \$18 million | 22 years in digital | HE UV Production house |
| #2 Midwest US high-end display graphics/events company | | |
| Estimated revenues \$36+ million | 10+ years in Digital | HE Solvent, Dye Sub UV house |
| #3 Western US Events and POP provider | | |
| Estimated revenues \$30 million | 18 years in Digital | HE UV and Eco-Solvent house |
| #4 Western US POP Specialist | | |
| Estimated revenues \$10 million | 5 years in Digital | Offset, UV roll-to-roll/FB HE, EcoSolvent Volume House |
| #5 Midwest US Offset Display Graphics Printer | | |
| Estimated revenues \$10 million | 2 years in digital | Offset, HE UV Flatbed system |
| #6 Midwest US high-end retail/event service provider | | |
| Estimated revenues \$80+ million | 23 years in digital | HE UV systems + misc. smaller UV/ES/LX/AQ |
| #7 Eastern US HE UV POP Printer | | |
| Estimated revenues \$20million | 10 years in Digital | HE UV systems |

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Digital Acquisition

To better understand the development of digital print technology in the display graphics market, we tried to analyze the adoption process of digital: its length, sources of information, changes to the existing process, ROI expectations and vendor satisfaction (Table 5).

Table 5: Wide-Format Display Graphics Digital Acquisition – Research Schematic Summary

| Wide Format Display Graphics Digital Acquisition – Research Schematic Summary | | | | |
|---|-------------|--------------|---------------|-------------------|
| Technology Acquisition | | | | |
| Sales Cycle to Acquisition | | | | |
| 6 months | ★ | 1 year | 2 years | 3 years |
| Due Diligence Format | | | | |
| Publications | Trade Shows | Peers | ★ | Vendor Commitment |
| Financing Mode | | | | |
| Cash | ★ | Self Finance | Bank Finance | ★ |
| Amortization Period | | | | |
| 1 Year | 2 Years | ★ | 5 Years | 10 Years |
| ROI | | | | |
| Accuracy of Model | | | | |
| Poor | | | ★ | Comprehensive |
| Missing Inputs with Hindsight | | | | |
| 0% | ★ | | | 100% |
| Degree of Continuing Confidence in Investment | | | | |
| 0% | | | ★ | 100% |
| ROI Achievement Period | | | | |
| 1 Year | 2 Years | ★ | 5 Years | 10 Years |
| Early Market Development | | | | |
| Net Process Cost Increase Because of Digital | | | | |
| Reduction | Neutral | ★ | Some Increase | Large Increase |

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Wide-Format Display Graphics

| | | |
|---|------------------|-------------------|
| Changes to Existing Production Processes | | |
| Insignificant | ★ | Significant |
| Satisfaction of Latent Demand | | |
| Minor Factor | | ★ Major Factor |
| Degree of Uncertainty Around New Demand | | |
| Insignificant | ★ | Significant |
| Developing a Digital Market | | |
| Degree of Migration Analog to Digital | | |
| Low | ★ | High |
| Process Economics or Creative Capability? | | |
| Process Economics | ★ | Creative Services |
| | Secondary Driver | ★ |
| Complexity of Integrating a Digital Offering | | |
| Minimal | Increasing | ★ High |
| Vendor Satisfaction | | |
| Satisfaction with Vendors | | |
| Low | | ★ High |
| Efficiency of User Market and Technology Understanding | | |
| Low | | ★ High |
| Vendors' Own Understanding of Market Conditions | | |
| Low | | ★ High |



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Technology Acquisition

The established display graphics market is maturing, and most PSPs are qualified in assessing the issues around acquisition with minimized risk. Even so, the rate of technology change is as fast as ever and creates a continuing need to adjust performance and economic assumptions. At the same time, there is growing demand for faster response and more varied graphics, so that added capacity is not a big economic risk. The risk is in falling prices, which push PSPs away from print to services.

ROI

ROI calculations in the upper production-oriented sector of the display graphics market that we have focused on researching is well-understood by established providers but is complicated in this sector by falling prices and increasing complexity of order make-ups and last-minute supply expectations. That is mitigated by growing volumes supporting higher productivity systems in a currently healthy consumer economy, but it still makes it harder to get to ROI than it once was, at least when looking at the market as a simple print transaction. At this end of the market, providers are increasingly understanding that print is a strategic support component for a wider offering more akin to a service offering around process organization as well as consulting.

Early Market Development

Early market development of the established high-end sector is about adaptation to a generation of much higher productivity systems, which are probably a precursor to single-pass technology and a credible potential to make inroads on the offset display graphics market in the future. The addition to or substitution of offset at this time is only just beginning to be seen. In that context early market development of the super-high-end UV generation of systems is successful and is laying a foundation for a generation of large-scale PSPs supporting high-productivity technology that will have the potential to take their technology to industrial, decorative and graphic arts markets as yet hardly developed.

Developing a Digital Market

At this time the high end of the display graphics market is still essentially serving larger retailers and brands leveraging event cycles with seasonally/event-driven high-volume variable display products driven by locality- or sector-specific service expertise. That expertise is in some advanced cases developing to a software-driven analysis/tracking module, which allows companies to manage their visual/presentational profile with increasingly higher degrees of customization and capability for sub-sectoral diversity. Rapid availability of highly varied graphic print in high aggregate quantities back this front-end offering and serve as a core margin-rich revenue component for sector-leading companies that present themselves as service providers in the broadest sense. This is a deep and rich vein of activity, which can serve as a model for other print markets.

Vendor Satisfaction

There is a high degree of satisfaction in this sector with vendors and technology, which is a natural consequence of the deep support vendors are known to give to products of this cost and capability at the high end of the UV market. There are some issues around UV technology and its equivalence to offset, but for most of today's purely digital markets, the products perform good service all around.



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Current Status of Digital Production Print in Display Graphics

Level of Development

All sectors in display graphics are well served by existing inkjet technology. Most of the market needs only serial, relatively slow technology, and even at the higher end with UV production systems, most systems are fast enough in serial format, though there are some early single-pass systems, but mostly to serve markets beyond just display graphics. Furthermore, inkjet in display graphics can offer solutions using the whole range of available technologies, which has been especially supportive of the wide substrate requirements of this market.

Digital Market Relationship to Analog

As explained in this report, the digital display graphics market has for over 20 years succeeded almost entirely independently commercially, technically and economically of the analog offset and screen display graphics markets. Some of the high-volume offset and screen houses are now taking an interest in high-end, fast UV systems, but it is a relatively specialist diversification interest rather than any attempt to replace analog print. If print-driven brand identity graphics become localized rather than international as they are today, that could open the analog market to much more digital penetration, but that is not how brand graphics are deployed today.

Satisfaction of Users

Satisfaction of display graphics inkjet users is high everywhere. The only dissatisfactions relate to the high level of print competition which, after 20+ years of the market existence, is not a testament to failure. Rather, users in this market have benefited and are aware of it from the diversity of more available productive technology from a very competitive vendor supply market.

Economics and Functionality at the Very Low End is the Initial Value Proposition

The display graphics market is the ultimate proof of the unique benefits of digital print in enabling low-end, low-volume economics of print within a high-value economic proposition. This has remained the dominant value proposition of digital print in display graphics over two decades.

Digital Uniqueness Evolves New Applications, Users and Links Directly to Brand Owners

The display graphics market has given rise to very strong creativity in print content and physical presentation terms, only the latest example of which is soft signage. In the case of this market, many of the local print providers' customers are often directly brand owners. A good example of this is professional sports leagues' use of event-related 'giant' graphics during games.



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Barriers to the North American Display Graphics Market

Display Graphics Market Maturity

The display graphics market is over 20 years old and it is economically mature without an obvious large-scale development vector to new applications. While the display graphics market has proven to be a pathway to higher-volume systems and to new industrial markets around display graphics consumers, these are not unrealized strategic display graphics opportunities per se. There is, however, room at the top for high production automated systems edging into single-pass productivity.

Lack of IT Infrastructure/Skills to Drive VDP

Even though there is a lack of infrastructure to drive variable-data printing (VDP) in the case of the display graphics market, this is less relevant because the vast majority of jobs are so small and local that each order is in itself a variable print component.

Projected New Opportunities

Display Graphics Volume Systems to New Graphic/Industrial Markets

Display graphics flatbed systems are reaching a level of print quality and productivity now that they are slowly beginning to look like more generic sheet-fed digital presses, which can perhaps apply their talents to graphic arts and industrial markets at will. We speculate that such presses could find a bigger and truly strategic market among sheet-fed offset commercial printers whose access to very large diverse markets is really their ace in the hole. This idea has at least one early vendor adherent.

Major Takeaways

The UV-oriented display graphics “volume” print channel has been a volume growth leader for a long time with deep experience of leveraging the scaled opportunity UV HE systems represent. As a result, there is a close symbiosis between vendors and users on systems’ design and specification.

While volumes continue to rise, profitability on print alone is not following. Volume graphics remains a very big important market with scale economic advantages for larger printers, but there are signs they cannot survive with just a print product anymore, without extended services driving the customer value proposition that print supports. The market shows signs based on our limited sample of turning from a print market to a services market, which print strategically supports. This is an economic model reversal if it is an accurate assumption.



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PRODUCTION TEXTILE MARKET

Market Definition

The digital textile printing market has existed for nearly 20 years, but it has significantly grown on a global scale in the last 5–6 years. This growth has been driven by production fashion apparel markets with a relatively small sub-sector of home furnishings, but also by soft signage, or the use of fabric substrates in the display graphics market.

Market Development

The soft signage market is dominated by dye sublimation ink technology – sometimes in transfer format, sometimes in direct-print format – and utilizes low-end systems costing under \$50,000 as well as production systems costing in excess of \$300,000.

The production apparel market used to be dominated by production systems costing more than \$300,000, utilizing inkjet equivalents of standard analog textile industry inks – predominantly reactive dyes for use on natural fibers. That market is important and growing and has reached a critical point of inflection of the analog fashion print business. But in addition to that market, dye sublimation systems (once considered unacceptable in the fashion business due to the low fade-resistance of the dyes) in high- and low-end formats have entered the apparel markets. They now mostly satisfy a new sub-sector of the market around sportswear products for the sports industries and consumer markets, but they may be showing signs of bringing dye sublimation to mainstream fashion markets in the future.

Home furnishings is a digital sub-sector addressed by production systems using traditional textile industry dye types, but is less fashion-driven, representing only around 15% of total digitally printed quantities in the upper production sector.

North American Digital Apparel and Home Furnishings Market Conditions

The modern North American apparel and home furnishings legacy production market (Table 6) is a shadow of its former self as a result of a trend which affected all Western markets, though in slightly different ways. Over 30 years ago the apparel manufacturing market (print/cut/sew) collapsed in a general global trend to shift manufacturing to China. The significance of this today is that there is almost no infrastructure left in North America able to form a base for regeneration of the market. Infrastructure means plant, and above all, personnel with the specific capability of printing, cutting and sewing on an industrial scale. For printing in particular, that refers to the ability to pre-treat and post-treat (wash) printed textiles, which use traditional textile dyes. But above all the lack of skills in sewing is a factor where North America (specifically the US) is almost entirely dependent on migrant labor.

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Table 6: North American Digital Textiles Market Positioning

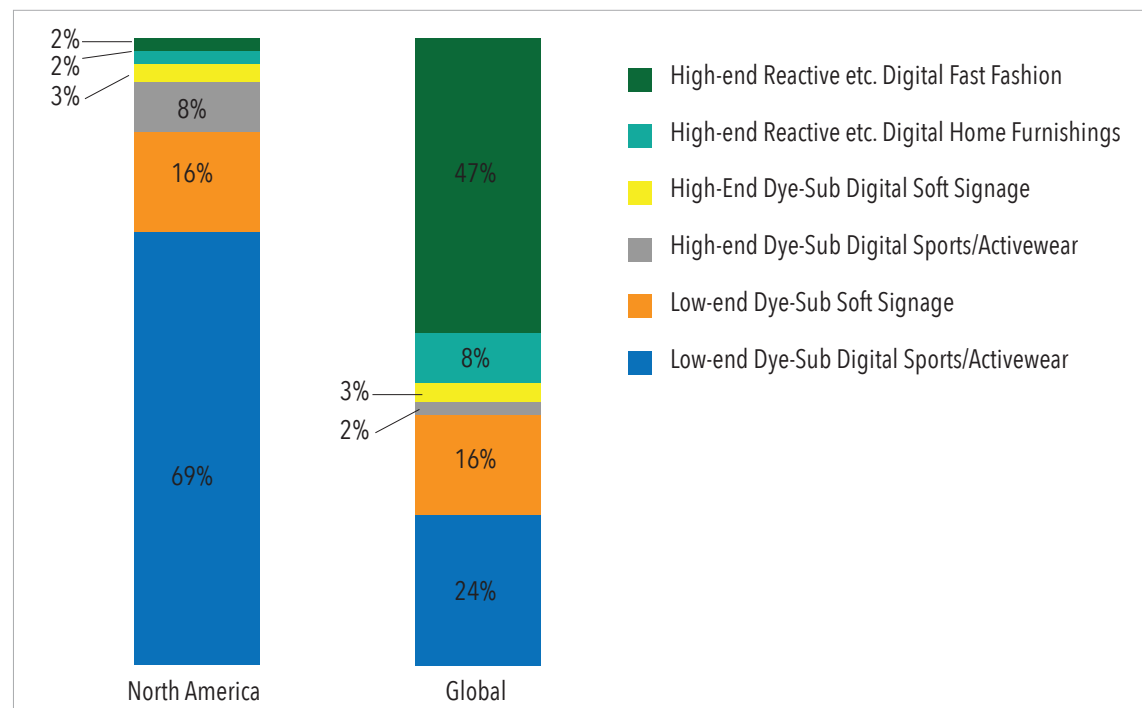
Years of digital market presence in North America: 10

| | |
|--|--|
| <i>Directness of competition of digital to analog (equal validity, but untested)</i> | |
| Better digital economics at low scale = directly competitive to analog | Uniqueness of digital offering |
| <i>Presence in Existing Analog Channel</i> | |
| Digital Integrated to Analog Channel | Separate Parallel Digital Channel |
| <i>Maximum Productive Scale vs. Analog Average</i> | |
| 500 (2 - 4,000 single pass) M ² /H Digital | 10,000 M ² /H Rotary Screen |
| <i>Digital Market Size: North America vs. EU</i> | |
| North America | EU |

Current Status

North American market of digital textiles output (square meters) represents about 22% of the global market (1.75 billion square meters). The distribution by technology sector is presented in Figure 6, with more than half of the final output coming from the low-end dye sublimation sportswear segment in North America, and about half of global output coming from high-end reactive digital fast fashion.

Figure 6: Digital Textile Market Output by Technology Sector (US vs. Global market)



Source: IT Strategies

Production Textile Market

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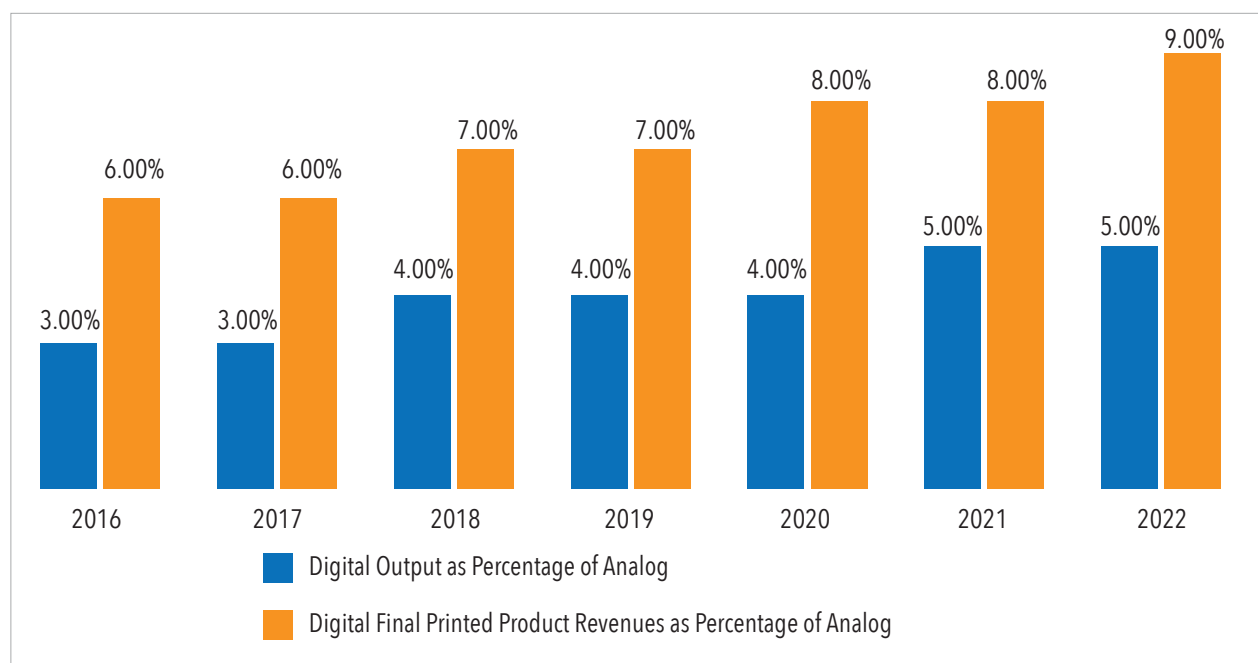
Wide-Format Display Graphics • Production Textile Market

Table 7: Textile Market – Analog vs. Digital, Output and Revenues, Forecast (North America)

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | CAGR |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Analog Printed Product Output, BM ² | 11.84 | 12.08 | 12.32 | 12.56 | 12.82 | 13.07 | 13.33 | 2.00% |
| Digital Printed Product Output, BM ² | 0.39 | 0.42 | 0.46 | 0.5 | 0.54 | 0.59 | 0.65 | 9.00% |
| Analog Printed Product Revenues, \$B | 44.8 | 45.25 | 45.7 | 46.16 | 46.62 | 47.09 | 47.56 | 1.00% |
| Digital Printed Product Revenues, \$B | 2.72 | 2.91 | 3.12 | 3.34 | 3.57 | 3.82 | 4.09 | 7.00% |

Source: IT Strategies

Figure 7: Textile Market – Digital Output and Revenues as Percentage of Analog, Forecast (North America)



Source: IT Strategies

Digital Technology Formats, Scale and 5-Year Targets

Dye sublimation printers at the low and high ends are relatively simple roll-to-roll systems derived from wide-format markets, though sometimes also from mainstream production fashion textile printers. They are functionally matched to the demand and channels in their markets. In the mainstream fast-fashion textile production market, the systems are mostly available from a very narrow range of vendors who are either Italian or who developed their systems in Italy. This is significant because all these presses have had to be integrated with sophisticated materials handling sub-systems, which were only available from existing textile industry suppliers as found in Italy of old tradition. Additionally, these advanced presses have been integrated to chemical and color management standards, which are also unique to the textiles industry.

Most of the systems serving the mainstream fashion digital production market today are serial printing systems. There is a market for single-pass systems, but it is limited to utilization at this time in support more so of fast response than high volumes of print. There could be a volume print market for single-pass systems in the future, which could contribute greatly to cost reduction, but there are barriers in the supply chain to developing fast-fashion digital markets that are out of the suppliers' control.

Production Textile Market

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Analog/Digital Channel Overlap

Dye sublimation markets in soft signage utilize existing display graphics digital channels. In terms of where dye sublimation is used for apparel, some of that is printed at display graphics specialists and some of it is printed at textile specialists, some of which even make sportswear. That is essentially a non-traditional channel.

In the mainstream fashion digital production market, the channel is almost exclusively traditional rotary screen printers, as they are the sites with the essential capability to pre- and post-convert printed textiles using traditional dyestuffs. This condition will continue to apply. The problem, however, is that these traditional printers are mostly not where the markets are in the US and EU, and the advantage of fast-fashion response needs increasingly to be based on the idea of market-proximate sites.

Digital Value Proposition

In soft signage, textiles are increasingly preferred because they are light, easy to install and transport and are less easily damaged. This has become a very significant driver of soft signage to the point that virtually no PSP in display graphics can afford not to have this capability now.

In apparel printing, the core value proposition of digital print is fast response. In rotary screen print apparel markets, a 6+ month lead-time was common. There are also advantages in the ability of digital to print contone images. But around the fast response issue, it has to be said today that screen printing seems to be able to serve the already large fast-fashion market to a share of around 90%. While it is true that the advantages of digital's response, shorter-run capability, etc. will tend to enhance its value over time, digital still cannot rest on its laurels while rotary screen seems to be able to rise to a large part of the challenge. This, combined with the aforementioned supply chain issues, give pause in looking at digital apparel production's immediate future. In dye sublimation, the suppliers are mostly from the digital world. In production apparel markets, the vendors are mostly from the analog world for the reasons explained above and are likely to remain so.

Positioning of Analog and Digital Print Today in Textiles Markets

Digital print of textiles confers well-understood advantages both in signage and apparel print. In signage, a textile substrate allows for easy packing and installation. Additionally, dye sublimation, which dominates the signage textile market, generates a particularly brilliant image color appropriate for display graphics. In apparel, the delays between design acceptance and delivery of finished clothing was a 6-12 months norm. Digital has the capability to generate turnaround in perhaps 2-3 weeks without the time-wasting changeover process or plates to produce.

The signage market has had soft signage as a mode of print for well over 10 years, but it was a niche specialty until about 4-5 years ago when prices for dye sublimation systems and inks started to come down significantly. This and other market conditions turned the soft signage specialty into a mode every one of the 150,000+ wide-format graphics print provider sites worldwide wanted to have. At this time, soft signage represents nearly 20% of all digital wide-format output globally in a market whose values for printed output globally exceed \$40 billion. The soft signage output is shared between low-end systems and now high-end systems, the demand for which has been boosted by the fast-growing market volumes.

In the apparel markets, there have been two largely separate developments:

1 – Mainstream Fashion Apparel Print

First, in mainstream fashion print, the market has been driven by a subset, leading high-value sector of the fashion industry called fast fashion, where apparel companies get product to market within weeks of adopting a new design and cycle design at the same pace. This has been possible by reversing the business model of the apparel industry and taking control of the whole supply chain again and allowing it to be driven by social media and digital communications technology. That has given rise to a need to bring apparel production back as close as possible to the markets in Europe and the US. But the problem has become that the infrastructure is mostly not available in North America and only partially in Europe as a result of the survival of specialist luxury markets. In that market, digital production has taken an approximately 10% share against rotary screen print. That means that digital has yet to solidify its position against screen print, which still manages to serve fast fashion even if arguably uneconomically out of over-supplied and, arguably unstable, West Asian markets. This market is addressed by high-end digital production presses from companies like MS and Reggiani (EFI).

The inflection point this sector now places production digital print before two issues. First, it is really dependent on the apparel industry to re-organize their supply chain to allow a true re-establishment of productive capacity close to and within European and North American markets. It may or may not be able/want to do that efficiently, but in any case, it is not in the hands of the digital print vendors. And if it does

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not happen, taking digital print in greater quantities to West Asian markets to substitute rotary screen print there is a very hard proposition not guaranteed to succeed for all kinds of digital infrastructure reasons. In short, digital probably only really beats rotary screen in very close proximity to user markets, but that is where you have the available resource/infrastructure issue.

Second, the production digital apparel vendors may decide, or have to decide, to diversify into other markets, one of which seems obvious today – soft signage. But that is not nearly as strategic an opportunity over the long term that fast fashion could be, even as it is also a distraction from apparel.

2 –Sportswear Apparel Print

The sportswear digital apparel market is a relatively new creature of the last 5–6 years. It is clothing for organized sports organizations using synthetics and driven by sports financing techniques involving wearing company and brand identities. But it has also spread to a new fashion market area involving activewear centered on consumer sports and leisure. And beyond that, we have also seen it begin to make inroads into mainstream fashion markets where the previously unacceptable poor fade characteristics of dye sublimation seem to matter less in a high-cycling fast-fashion world, though this is a small and new development. This market is largely addressed by low-end serial print systems in Europe, North America and Central. The North American trend has been boosted by the Central American Free Trade Area (CAFTA) agreement, which gives a 10-year tax holiday in the US to anyone investing in re-shoring of apparel manufacture to North America. It is said that the low scale of the digital print systems in this sub-sector favors the small scale of the new apparel manufacturers serving this sportswear market. But it is also said that within or without the spirit of the law, there is significant competition in dye sublimation sportswear from Asian suppliers, perhaps even getting around tariffs. This market is addressed by major vendors such as Epson and Mimaki.

Textile Channels

For soft signage, the channel is the existing wide-format PSP and commercial print channel to which all soft signage vendors have access. These channels are almost all pure digital shops and even where not, their analog businesses are in process terms unconnected to their digital businesses.

For dye sublimation sports/activewear, the channel in the US is sometimes specialized existing wide-format PSPs who have specialized, especially in the southwest US, in apparel brands and retailers as customers. But there is also a very vibrant market in smaller specialized PSPs in Central American countries feeding the US brand/retail market. Some of them own the print technology themselves. Again, these are almost exclusively pure digital channels.

For the production apparel market, there is as good as no remaining channel at this time with the skills or infrastructure left to be able to leverage national and growing production apparel markets. Of course, fast fashion, which the production digital apparel sector serves, exists in North America, but it is served largely through imports of products printed with screen or digitally in different parts of Asia and occasionally Europe in small amounts.

The textiles production market in North America is made up only of dye sublimation printers available in low-end format up to \$60,000 and in high-end format over \$300,000. At the low end they feed a soft signage market that has seen a major growth spurt in the last 3 years in the display graphics market, but in equal measure also a fairly new fashion sector using digital output in sportswear (teamwear, but increasingly also female leisurewear). A large part of the sportswear printed product is imported from Central America.

At the high end of dye sublimation, most systems feed the soft signage market with some covering higher-volume fashion sportswear demand. The fashion part of this demand is handicapped in the US by a growing lack of skills and infrastructure around sewing and assembly except for specific areas around the Southwest.

In North America, unlike in Europe, there is almost no market for production roll-to-roll high-volume fashion or home furnishings textile print feeding the mainstream branded fashion market with permanent dye print, because there is almost no manufacturing infrastructure left in North America after the migration of the textile industry to Asia 30 years ago. In contrast there is some infrastructure left in Europe where some of the production mainstream fashion textile market is to be found. But the large part of production fashion textile print is still in Asia. Meanwhile the demand for mainstream digital fast-fashion print (fast cycling print patterns at retail), in particular, favors the capabilities of such digital print. That demand exists at retail in North America today and is satisfied by print imported from Europe and Asia.

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Primary Research Analysis: Interview Targets within Textile Environments

There is almost no mainstream production digital fashion print in North America due to the lack of infrastructure and the adaptation over 30 years of the apparel industry to overseas sourcing, so the foothold production mainstream digital apparel print has in Europe does not exist in North America. Therefore, we have had to focus on low- and high-end owners of dye sublimation systems covering apparel, home furnishings and soft signage markets. These are generally not environments where digital acts directly competitively to an analog print technology. They are major growth markets for digital creating volume markets within a fragmented infrastructure of small local sites largely following the model of the now very large wide-format graphics market and using that channel in soft signage applications. The wide-format market also has a high-end channel, however, which supports high-volume graphics users, and is also the channel for much larger dye sublimation systems for signage. Where dye sublimation is deployed for sportswear garments and more and more also for mainstream fashion, it is in North America, mostly through garment-specialist small printshops – some of them in the US, but many in Central America. Some of these shops are now breaking toward acquiring high-end dye sublimation systems originally designed for soft signage.

Table 8: Summary of Textile Market Interviewees

| | | |
|---|----------------------|--|
| #1 Midwest USA HE dye sub Sportswear Printer | | |
| Estimated revenues \$6 million | 13 years in Digital | Production HE Dye Sub Transfer system |
| #2 Midwest US events/trade show-driven graphics group | | |
| Estimated revenues \$75+ million | 10+ years in Digital | Multiple Production HE Dye Sub and UV FB/ Roll-to-roll systems |
| #3 Southern US Events/Sports-specialist Soft Signage printer | | |
| Estimated revenues \$20 million | 3 years in Digital | HE Latex and HE UV FB systems |
| #4 Southern US Soft Signage Printer | | |
| Estimated revenues \$9 million | 5 years in Digital | HE LX systems |
| #5 Midwest US LE Soft Signage Printer | | |
| Estimated revenues \$4 million | 3 years in Digital | LE Dye Sub Systems |
| #6 Western US LE Dye Sub Sportswear Printer | | |
| Estimated revenues \$7+ million | 4 years in Digital | LE Dye Sub Systems |
| #7 Eastern US HE Soft Signage Printer | | |
| Estimated revenues \$40 million | 7 years in Digital | HE Dye Sub Systems |

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Digital Acquisition

To better understand the development of digital print technology on the textile market, we analyzed the adoption process of digital: its length, sources of information, changes to the existing channels, ROI expectations and satisfaction with the vendor (Table 9).

Table 9: Textile Market Digital Acquisition – Research Schematic Summary

| Textile Market Digital Acquisition – Research Schematic Summary | | | | |
|--|---|---|---|---|
| Technology Acquisition | | | | |
| Sales Cycle to Acquisition | | | | |
| 6 months | 1 year  | 2 years | 3 years | |
| Due Diligence Format | | | | |
| Publications | Trade Shows  | Peers | Vendor Commitment | |
| Financing Mode | | | | |
| Cash  | Self Finance | |  | Bank Finance |
| Amortization Period | | | | |
| 1 Year | 2 Years |  | 5 Years | 10 Years |
| ROI | | | | |
| Accuracy of Model | | | | |
| Poor | | | |  Comprehensive |
| Missing Inputs with Hindsight | | | | |
| 0%  | | | | 100% |
| Degree of Continuing Confidence in Investment | | | | |
| 0% | | | |  100% |
| ROI Achievement Period | | | | |
| 1 Year | 2 Years |  | 5 Years | 10 Years |

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Production Textile Market

| Early Market Development | | | |
|--|---|--|------------------------|
| Net Process Cost Increase Because of Digital | | | |
| Reduction | ★ | Neutral | Some Increase |
| | | | Large Increase |
| Changes to Existing Production Processes | | | |
| Insignificant | | ★ | |
| | | | Significant |
| Satisfaction of Latent Demand | | | |
| Minor Factor | | | ★ Major Factor |
| Degree of Uncertainty Around New Demand | | | |
| Insignificant | ★ | | |
| | | | Significant |
| Developing a Digital Market | | | |
| Degree of Migration Analog to Digital | | | |
| Low | ★ | | |
| | | | High |
| Process Economics or Creative Capability? | | | |
| Process Economics | | | ★ Creative Services |
| Complexity of Integrating a Digital Offering | | | |
| Minimal | ★ | Increasing | ★ High |
| | | Low-end dye sub apparel and all soft signage | Hi-end dye sub apparel |
| Vendor Satisfaction | | | |
| Satisfaction with Vendors | | | |
| Low | | | ★ High |
| Efficiency of User Market and Technology Understanding | | | |
| Low | | | ★ High |
| Vendors' Own Understanding of Market Conditions | | | |
| Low | | ★ | High |



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Technology Acquisition

For the relevant North American acquirers of dye sublimation and latex textile printing systems the last 3-4 years have seen a dramatic rise in growth in soft signage applications. It has become a general trend affecting most print providers in the large digital wide-format market (50K+ outlets in the US alone). Acquisition is thus a reflex responding to demand pressure for low- and, most recently, high-end systems.

In the apparel sector the market is much more specialized and localized to the southwest US and indeed mostly fed from Central America. Most of the demand for apparel dye sub is driven by sportswear markets, with some initiatives in fashion. Fast fashion per se, the driver of the first ten years of production digital apparel printing in Asia and fed with systems from Europe, is supplied in North America by imports from abroad, as always, and most of the imports in North America as in Europe are in fact mostly not digitally printed.

ROI Efficiency

At the low-end of the dye sub and latex markets ROI issues are mitigated by the sense of an excess of demand and also by the fact that many adopters of new systems are not new to the technology or the relevant vendors. At the high end for both technologies where acquisition costs generally exceed \$300K healthy demand is even more powerful as a mitigator of concerns about attaining ROI. But overall users felt they had the information to make a rational enough calculation to allay fears. That is not the same thing as to say that the profitability of the market is satisfactory. At the low end of soft signage that is not the case due to great competitive pressure.

Early Market Development

None of our interviewees were new to technology or market at the time of their last acquisition so that for all of them market development has meant transfer of capacity to scaled-up systems or just extension of capacity. This has proceeded without issue. There has been a need for some to extend fulfillment or finishing services especially around dye sub transfer equipment, but it is considered part of the printer acquisition process.

Developing a Digital Market

In the soft signage, market development benefits from growing demand, but it suffers from very high levels of competition between systems vendors, which drives print provider competition. So, volumes are good, but providers are unhappy to about a 60% level with price conditions. In the apparel markets, at high end the market has difficulty developing due to a lack of North American-based infrastructure and labor upstream around the manufacturing of garments. At the low end in apparel there is better coordination with small garment shops in California and Texas as examples, though the bulk of product feeding the sportswear and early dye sub fashion markets comes from Central America.

Vendor Satisfaction

There is as good as no sense in the North American textiles market of being over-sold or not finding technology fit for purpose. In this sense the market within its commercial limitations is relatively simple and straightforward. That is also of course what gives rise to early and aggressive over-supply among print providers.

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Current Status of Digital Production Print in Industrial Markets

Level of Development

For production textile printing – both of apparel and signage – the technology of aqueous inkjet is well-developed and suited to production rates comparable to analog rotary screen printing and with a higher-quality level in terms of continuous tone capability. The only area of shortcoming so far in digital is the availability of pigment inks, which are becoming prevalent in analog printing for largely environmental reasons (minimized post-processing). Resolving that issue is not proving easy so far.

Digital Market Relationship to Analog

In soft signage, there is no substantial analog market and all digital print is digital upside and objective market expansion. In the largest potential market by far of apparel, print digital's share is under 10%. While the value proposition for the most valuable sub-sector of fast fashion of digital print's immediate availability is very strong, fast fashion is still progressing well using analog print and has not developed dependency on digital beyond an interest level. This is conditioned textile supply chain issues and is not the fault of digital but could yet sustain digital's relative marginalization so far.

Satisfaction of Users

Users are satisfied with digital print in all sectors. Having said this, color control is a special issue for digital and not necessarily universally well managed.

Economics and Functionality at the Very Low End is the Initial Value Proposition

Short run is not the issue in textile print nearly so much as fast response (which tends to edge toward functional short run), driven by fast cycling of fashion, which analog cannot easily keep up with at least in a profitable way in the US and Europe. The economics are good in this sense for digital, but as stated previously, digital has not become economically essential on a global scale. In signage printing, the value proposition is around convenience and not essentially economics at all except in the sense of a more economic installation process (as opposed to print on its own).

Digital Uniqueness Evolves New Applications, Users and Links Directly to Brand Owners

This is a secondary argument for digital apparel print and does have traction, but like all such unique markets, it is slow to grow. This will not carry digital production textile print to the volumes fast response could within the next 10 years.

Barriers to the North American Market in Textiles

Lack of Textile Manufacturing and Supply Chain Infrastructure in North America

Digital textile production roll-to-roll printing of mainstream fast-fashion apparel cannot have a strategic presence in North America as long as there is no integrated industrial infrastructure providing post-print processing, sewing and manufacture. This is partly available in Central America on a relatively low scale.



Industrial Digital Print Markets: North America

An Analysis of User Adoption Practices and Opportunity (Part 2)

Wide-Format Display Graphics • Production Textile Market

Projected New Opportunities

Domestic Apparel Manufacture

The lack of an infrastructure to underpin a major renaissance in fast-fashion mainstream domestic digital fashion print in North America is unfortunate for existing suppliers of such mainstream fashion digital print based out of Europe, and for potential startups in North America. This North American issue makes it an uphill task to expand digital production print's share of fast fashion outside of North America (partly related to the shift to online purchasing) and threatens to slow the global digital share of this market. This is a problem for which the resolution holds such a high upside promise that it deserves to be classified as much as an opportunity as a barrier for anyone creative enough.

Major Takeaways

Digital textile systems in North America are nearly all dye sublimation high- or low-end systems and are developed and efficient systems, which are easy to acquire in a competitive market.

The dye sublimation soft signage markets, and – where appropriate regionally – the dye sublimation sportswear markets are also now established markets relatively easy to enter under conditions of persisting relatively high growth.

All dye sublimation markets in North America, however, have also now become highly-competitive among PSPs and providers so that the sense of the value and profitability of all the relevant markets is diminished. This has partly been driven by the low acquisition costs of entry.



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Conclusion

Wide-Format Graphics

- For suppliers, wide-format graphics is a mature market due to competition, but for users, demand still grows after 25 years and the added value of super-conversion and added services also still climbs. This started as – and remains – a fully fragmented decentralized market, which is its appeal in terms of service and in terms of its ability to sustain value without volume aggregated economics making the economic situation intolerable.
- Wide-format graphics markets are still leverageable in terms of renewable creative response to applications and evermore economic technology. These markets have also given rise to a strength of relationship between print provider and user, which has enabled PSPs to actively access non-wide-format graphic industrial and even move graphic demand out of traditional hands into their own.

Textiles

- Production textiles roll-to-roll printing in North America is confined largely to soft signage, which is not the largest area of demand on a global basis. In soft signage, however, we have seen a spread to all channels of the wide-format market and a verticalization in some areas into such sub-sectors as sport or entertainment markets to a significant extent led by textile digital capability. Dye sublimation has also on a low scale met some of the demand for digitally-printed apparel through micro-supply in large aggregate quantities.
- Textiles in signage and apparel and even home furnishings are just getting into their digital stride as larger-scale markets with significant user preference based on environmental, cost and unique quality arguments. Technology is available at high and low scales for all types of print outlets and converters in diverse markets. These are good digital textile times.

WHO WE ARE

IT Strategies, Inc.

Founded in 1992 by Mark Hanley, IT Strategies is a strategic consultancy specializing in industrial digital printing, inkjet technology and early market development practices. The company is based in Boston and Tokyo and operates on a private partnership basis. IT Strategies is a confidential practice with no publishing function and is expert in technology and market analysis based on a wide factual knowledge base.

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SGIA — Supporting the Leaders of the Digital & Screen Printing Community

Specialty Graphic Imaging Association (SGIA) is the trade association of choice for professionals in the industrial, graphic, garment, textile, electronics, packaging and commercial printing communities looking to grow their business into new market segments through the incorporation of the latest printing technologies. SGIA membership comprises these diverse segments, all of which are moving rapidly towards digital adoption. As long-time champions of digital technologies and techniques, SGIA is the community of peers you are looking for to help navigate the challenges of this process. Additionally, the SGIA Expo is the largest trade show for print technology in North America. "Whatever the medium, whatever the message, print is indispensable. Join the community – SGIA."

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